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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2013 Air Force	<b>DATE:</b> February 2012
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<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				PE 0603432F: <i>Polar MILSATCOM (Space)</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	138.051	101.348	120.676	-	120.676	124.805	96.782	73.402	52.244	Continuing	Continuing
644052: <i>Polar Satellite Communications</i>	138.051	101.348	120.676	-	120.676	124.805	96.782	73.402	52.244	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**Note**

The Cost to Complete and Total Cost for MDAP projects in this program element are documented in the R3. The Cost to Complete and Total Cost on the R2 are entered as "Continuing" and not reflective of the total cost for MDAP projects since the R2 does not account for prior years funding.

**A. Mission Description and Budget Item Justification**

This program element acquires the Polar Military Satellite Communications (MILSATCOM) system that provides protected communications (anti-jam and low probability of intercept and detection) for users in the north polar region.

Through FY05, Polar Satellite Communications had funded three low data rate (LDR) Milstar packages on three classified host satellites as an expedited, interim solution for protected connectivity requirements in the north polar region (i.e., Interim Polar System (IPS)). Two satellites with hosted packages are required to provide the necessary 24-hour coverage. The third package went into operations in November 2008 to sustain the 24-hour coverage.

In FY06, the DoD began funding the next generation Polar Satellite Communications capability with two more polar packages via the same type host vehicle (i.e., Enhanced Polar System (EPS)). The host spacecraft and the polar communications packages require design modifications to replace obsolete components and take advantage of the more capable Advanced Extremely High Frequency (AEHF) technology including the eXtended Data Rate (XDR) waveform. The EPS Capability Development Document (CDD), Joint Requirements Oversight Council approved in September 2006, is based on a two-package, hosted XDR program with operational availability in CY15 and CY17. The EPS system is intended to be comprised of four segments: Payload, Ground Control, Gateway, and Terminal (acquired by each Service's Terminal Program Office).

In FY11, the EPS CDD was updated to provide a stand-alone ground capability that was no longer fully integrated with AEHF. The restructured program will deliver "IPS-like" capability with the XDR waveform, and a connection to the defense network. An EPS system-level Preliminary Design Review (PDR) will be held 3QFY2013 and a Milestone B review will be held 4QFY2013.

FY13 funds will continue integration of the two EPS packages (payloads) onto the host satellites. Following award of the ground Control and Planning Segment (CAPS) in late FY12, the program office will begin development of the ground CAPS. The program office will conduct a PDR of the ground CAPS. Additionally, the program office will conduct a Critical Design Review (CDR) of the Navy-developed ground Gateway segment.

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APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE				
3600: Research, Development, Test & Evaluation, Air Force		PE 0603432F: Polar MILSATCOM (Space)				
BA 4: Advanced Component Development & Prototypes (ACD&P)						
The Polar MILSATCOM program is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P) because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.						
B. Program Change Summary (\$ in Millions)		FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget		164.232	122.991	121.419	-	121.419
Current President's Budget		138.051	101.348	120.676	-	120.676
Total Adjustments		-26.181	-21.643	-0.743	-	-0.743
• Congressional General Reductions		-	-1.643			
• Congressional Directed Reductions		-	-20.000			
• Congressional Rescissions		-	-			
• Congressional Adds		-	-			
• Congressional Directed Transfers		-	-			
• Reprogrammings		-3.615	-			
• SBIR/STTR Transfer		-20.590	-			
• Other Adjustments		-1.976	-	-0.743	-	-0.743
Change Summary Explanation						
FY11: -\$3.615M reprogrammed for higher Department priorities; -\$20.590M SBIR; Other Adjustment Row: -\$1.976M Congressional General Reductions						
FY12: -\$1.643M Congressional General Reductions; -\$20M Congressional Directed Reduction due to development schedule delay						
FY13: -\$0.743M for reallocation of funding to higher Department priorities						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2011	FY 2012	FY 2013
Title: EPS				138.051	101.348	120.676
Description: Develop and acquire EPS MILSATCOM						
FY 2011 Accomplishments:						
In FY2011: Acquired the payload engineering model test bed from the Developer to support intersegment testing and complete integration of both payload #1 and #2 subsystems. Initiated architecture development of the Gateway segment and planned the development of a scaled down ground control segment, known as the Control and Planning Segment (CAPS).						
FY 2012 Plans:						
In FY2012: Deliver two payloads to the host and initiate integration of payloads onto host satellites. Conduct the CAPS source selection and award the contract. Continue development of the Gateway segment and conduct the Preliminary Design Review.						
FY 2013 Plans:						

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603432F: <i>Polar MILSATCOM (Space)</i>							
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>		
In FY2013: Will continue integration of the two EPS payloads onto the host satellites. Will conduct the CAPS Preliminary Design Review and will conduct the Gateway segment Critical Design Review											
<b>Accomplishments/Planned Programs Subtotals</b>							138.051	101.348	120.676		
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<b>E. Acquisition Strategy</b>											
The Enhanced Polar System (EPS) is the follow-on to the currently operational Interim Polar System (IPS) and is a component of the Extremely High Frequency SATCOM architecture providing secure, protected communications to worldwide users. The EPS acquisition consists of four segments (Payload, Ground Control, Gateway, and Terminal) acquired by separate procurement actions. The EPS payloads will be hosted on a classified satellite and acquired by the organization hosting the EPS payloads. The MILSATCOM System Directorate will procure the Ground Control and Gateway segments. The Terminals which will use EPS will be acquired by each Service's Terminal Program Office.											
<b>F. Performance Metrics</b>											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2013 Air Force **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603432F: <i>Polar MILSATCOM (Space)</i>	<b>PROJECT</b> 644052: <i>Polar Satellite Communications</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Classified	TBD	TBD:TBD,	299.594	-		-		-		-	0.000	299.594	0.000
EPS Requirement Analyses and Design Trade Studies	Various	Various:Various,	76.187	-		-		-		-	0.000	76.187	0.000
Ground study and Emulator development	SS/CPAF	Johns Hopkins University/Applied Physics Lab:Columbia, MD	11.146	2.911	Dec 2011	3.000	Dec 2012	-		3.000	0.000	17.057	0.000
Control and Planning Segment (aka Mission Operations System)	C/FPIF	TBD:TBD,	-	1.000	Aug 2012	57.063	Dec 2012	-		57.063	157.370	215.433	0.000
Gateway architecture development	MIPR	SPAWAR:San Diego, CA	5.400	11.176	Dec 2011	13.527	Dec 2012	-		13.527	42.946	73.049	0.000
EPS Design/Development Contract	SS/CPAF	NGAS:Redondo Beach, CA	553.053	53.809	Dec 2011	12.073	Dec 2012	-		12.073	51.635	670.570	0.000
Mission Control Segment Design Trade Studies	SS/CPAF	Lockheed Martin:Sunnyvale, CA	29.509	-		-		-		-	0.000	29.509	0.000
Cryptographic Modifications	MIPR	NSA:Camden, NJ	6.845	1.147	Dec 2011	-		-		-	0.000	7.992	0.000
<b>Subtotal</b>			981.734	70.043		85.663		-		85.663	251.951	1,389.391	0.000

**Remarks**

Classified Contract Method/Type/Activity and Location are classified

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
FFRDC (PMA)	Various	Various:Various,	47.567	11.355	Dec 2011	-		-		-	0.000	58.922	0.000
Program Office Support (PMA)	Various	Various:Various,	76.898	18.550	Dec 2011	-		-		-	0.000	95.448	0.000
Systems Engineering & Integration	Various	Linquest:Los Angeles, CA	-	-		6.684	Dec 2012	-		6.684	22.153	28.837	0.000
Govt Furnished Property (PMA)	Various	Various:Various,	10.957	1.400	Dec 2011	2.294		-		2.294	0.000	14.651	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Air Force											DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 ITEM NOMENCLATURE PE 0603432F: Polar MILSATCOM (Space)				PROJECT 644052: Polar Satellite Communications					
Support (\$ in Millions)					FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			135.422	31.305		8.978		-		8.978	22.153	197.858	0.000	
Test and Evaluation (\$ in Millions)					FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-	0.000	0.000	0.000	
Management Services (\$ in Millions)					FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
FFRDC (PMA)	Various	Various:Various,	-	-		10.463	Dec 2012	-		10.463	30.252	40.715	0.000	
Travel/Business Ops Support Services/Acquisition Mission Support (PMA)	Various	Various:Various,	-	-		15.572	Dec 2012	-		15.572	42.877	58.449	0.000	
Subtotal			-	-		26.035		-		26.035	73.129	99.164	0.000	
			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			1,117.156	101.348		120.676		-		120.676	347.233	1,686.413	0.000	
Remarks														

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Exhibit R-4, RDT&E Schedule Profile: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 ITEM NOMENCLATURE PE 0603432F: Polar MILSATCOM (Space)	PROJECT 644052: Polar Satellite Communications

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Air Force			<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603432F: <i>Polar MILSATCOM (Space)</i>	<b>PROJECT</b> 644052: <i>Polar Satellite Communications</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Ground Control Emulator Review	2	2011	2	2011
Deliver payloads and begin integration onto host satellites	2	2012	2	2012
Control and Planning Segment Preliminary Design Review	2	2013	2	2013
Ground Gateway Critical Design Review	4	2013	4	2013